2021 Sanitary Sewer Master Plan Update

Community Meeting

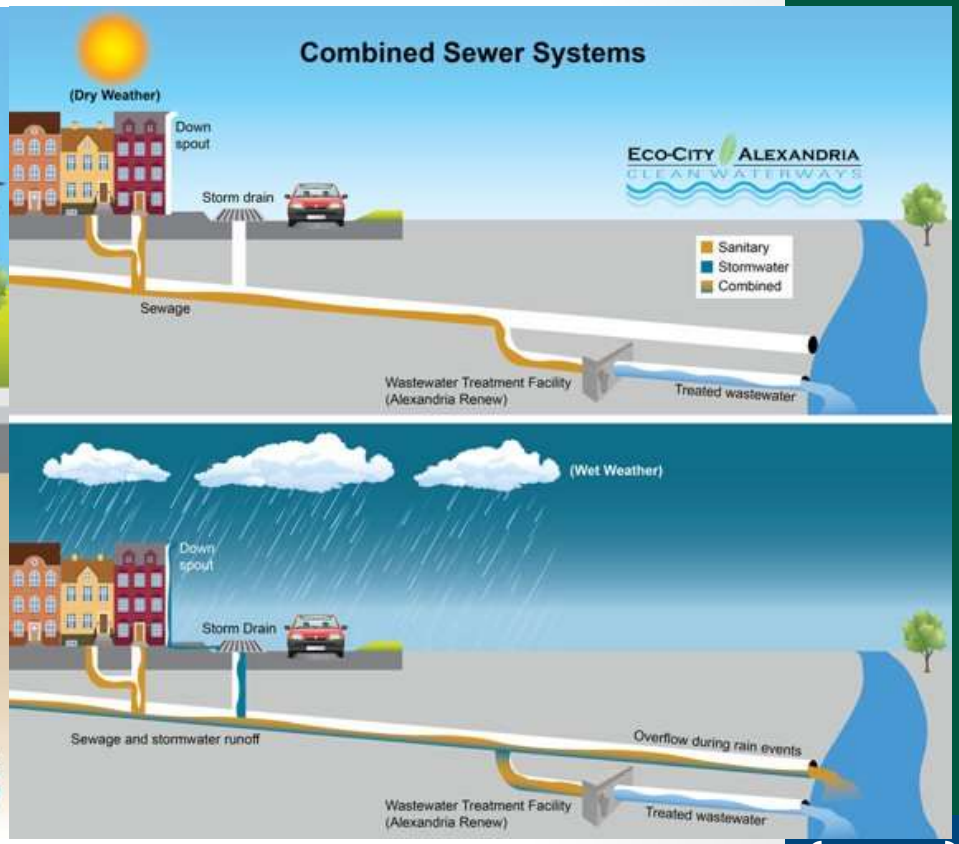
September 30, 2021

Sewer Master Plan Objectives

- Understand How the System Works
- Analyze Impacts of Growth
- Analyze the Capacity of the System and Identify System Improvements
- Discuss Ongoing and Future Wet Weather Mitigation Strategies
- Perform Sanitary Fee Study and Provide Recommendations

Types of Sewer Systems

Represents ~95% of City



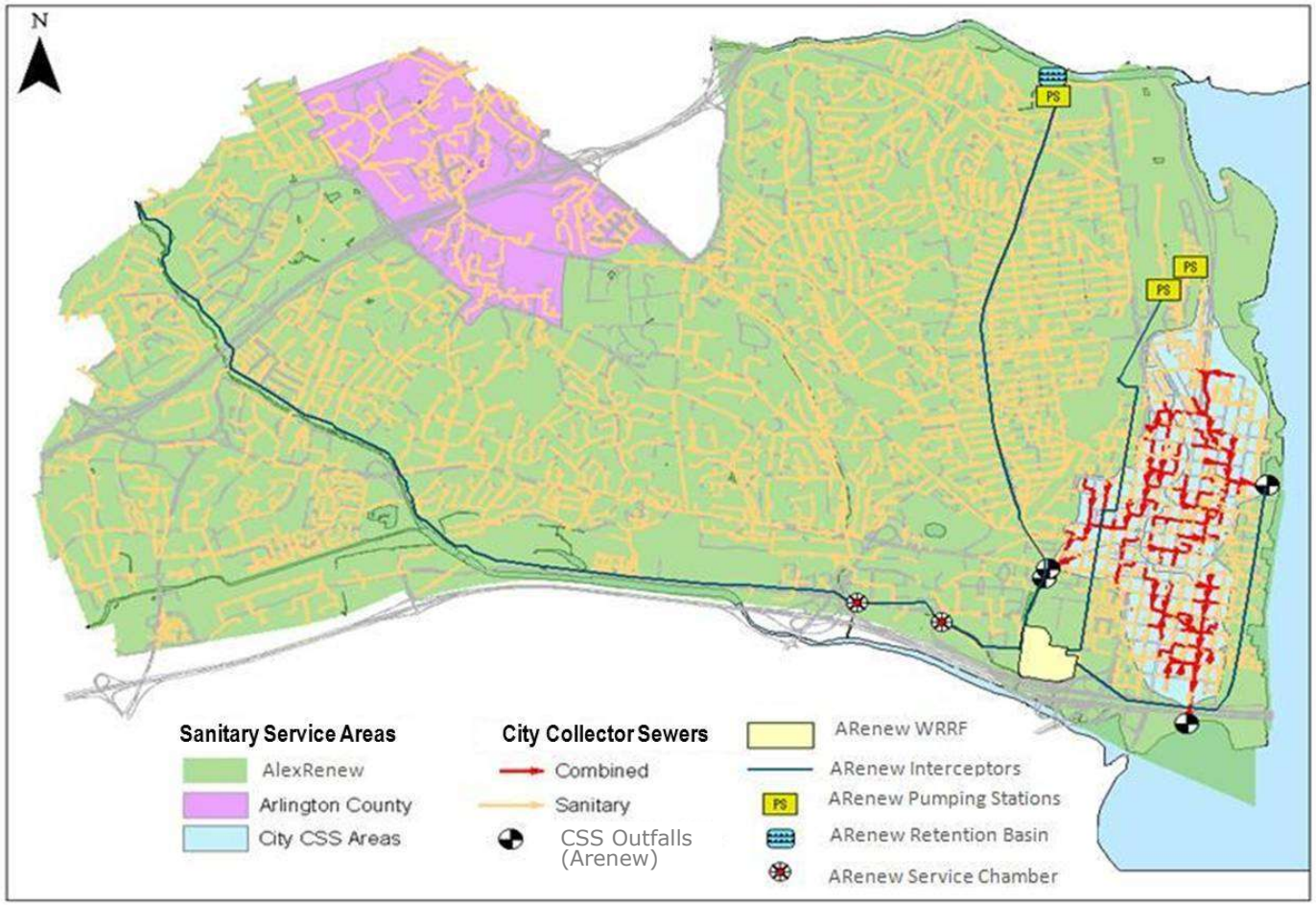
Represents ~5% of City (Old Town)

System Overview

City owns and operates 240 miles of sanitary and combined sewer

About 85% of all sewers 12-inches in diameter or smaller

60 miles of sanitary sewer have been rehabilitated



RiverRenew Project

RiverRenew Project will capture millions of gallons of combined sewage each year from 4 existing outfalls and transport it to AlexRenew for treatment

Construction Areas:

- AlexRenew wastewater treatment facility
- Outfall sites
- Hooffs Run Interceptor Sewer (open cut)

Schedule

- Final Design/Construction Start: December 2020
- Completion: July 2025 (regulatory deadline)

Funding by sewer rate increases, along with state contributions

For more information, visit riverrenew.com

Sewer System Capacity Analysis

- Growth forecasts used to analyze system capacity on the following
  - Wastewater treatment capacity
    - AlexRenew Water Resource Recovery Facility
    - Arlington County Water Pollution Control Plan
  - Interceptor sewer capacity (AlexRenew assets)
  - City-owned collection system capacity

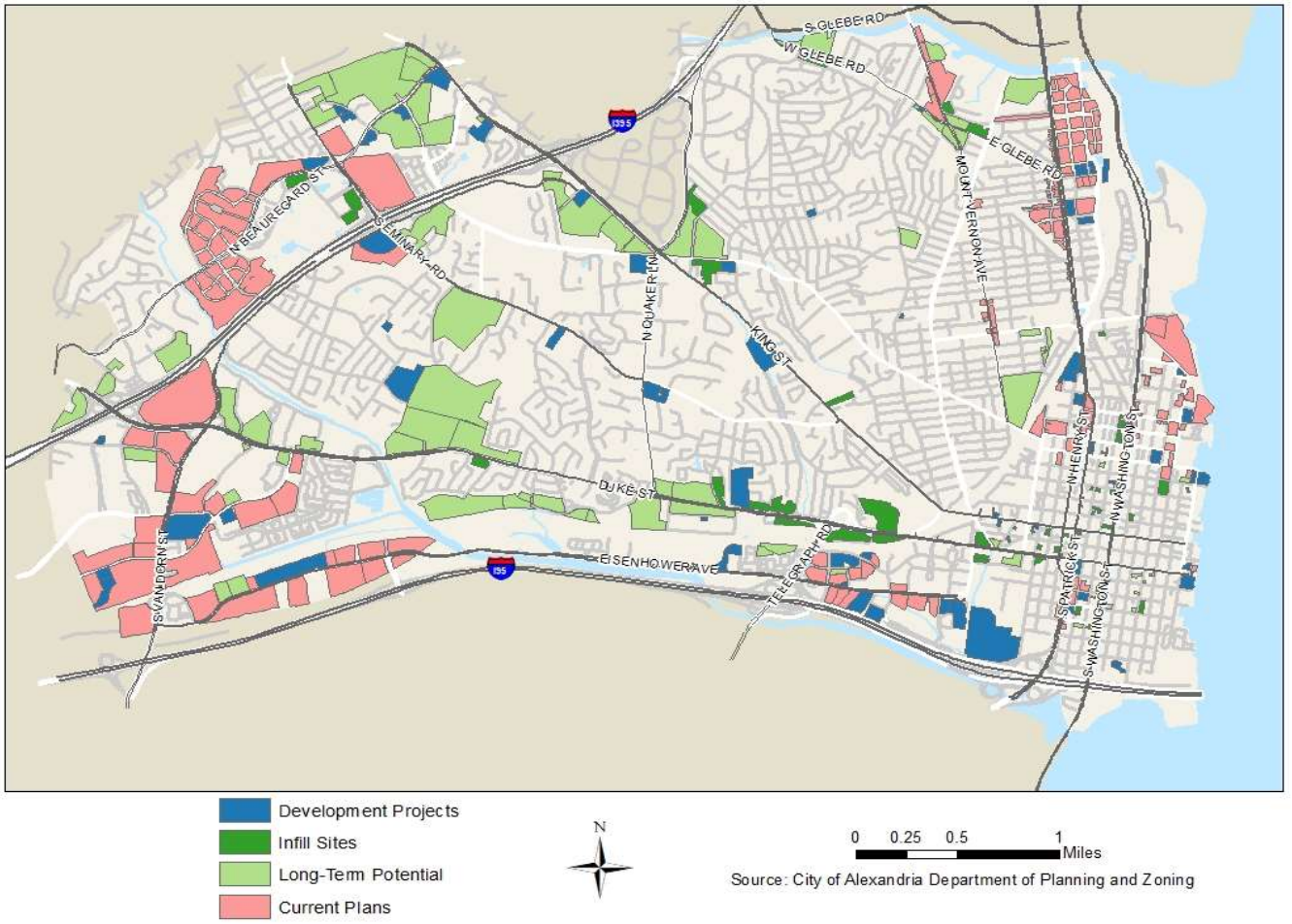
Growth Forecasts

Development Projects: ongoing site plans

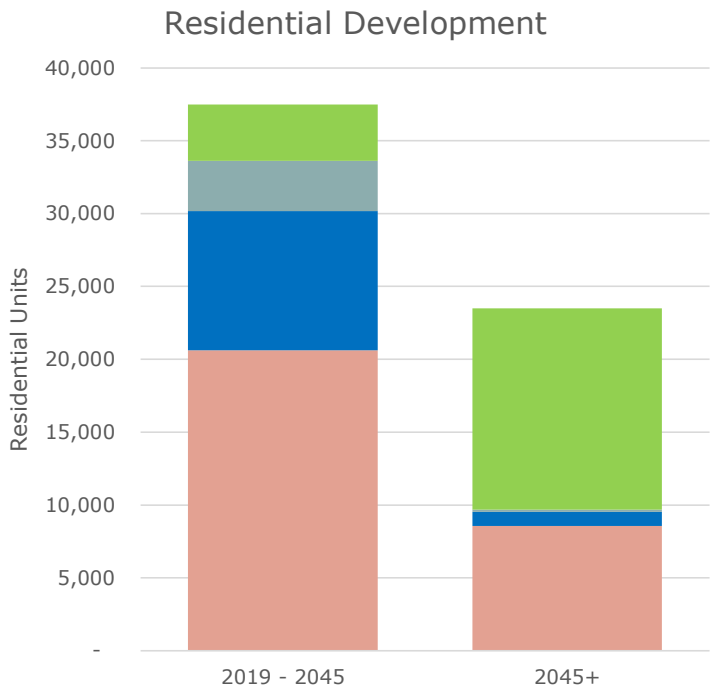
Infill Sites: small individual sites, development within 10-20 years

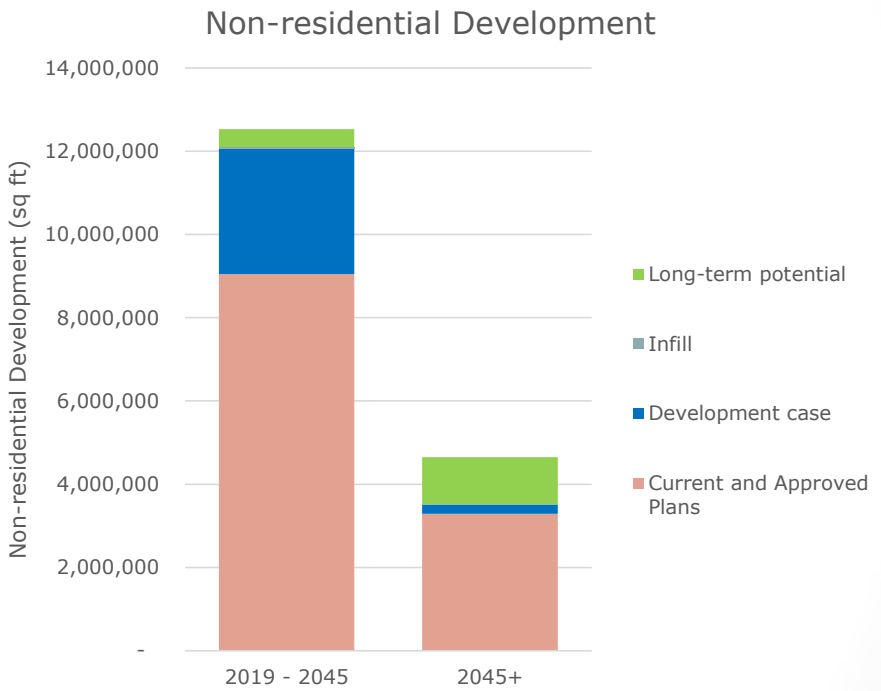
Current Plans: Small Area Plans, Coordinated Development Districts, etc. 20-30 year forecast

Long-Term Potential: lots of uncertainty



Growth Forecasts





Wastewater Treatment Capacity

Wastewater Treatment Alternatives:

- Expansion at AlexRenew
- Purchase capacity at AlexRenew from Fairfax County
- Combination

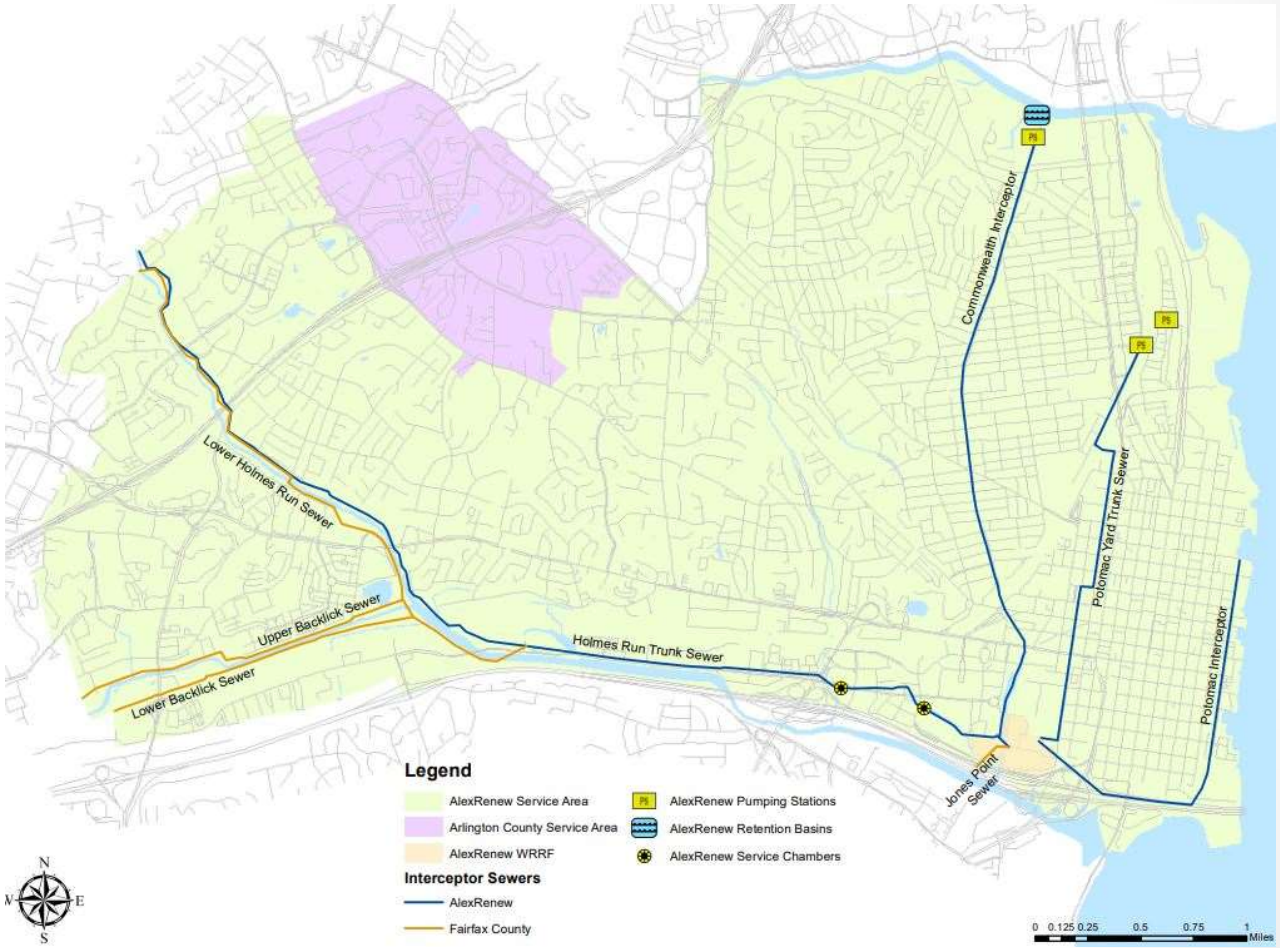
Study to be undertaken following RiverRenew construction

Sewer Service Area		Average Annual Wastewater Flow (million gallons per day)					
	City Allocation	Existing	2030	2040	2050	Build-out	Additional Need
AlexRenew	21.6	17.14	19.63	21.36	23.23	25.31	3.71
Arlington	3.0	1.28	1.49	1.61	1.68	1.78	N/A

*Existing allocation at AlexRenew reached around Year 2042

AlexRenew Interceptor Sewer Capacity

- Plan identifies two areas where capacity upgrades needed to accommodate future growth
  - Upper Holmes Run Trunk Sewer
  - Potomac Yard Trunk Sewer



Upper Holmes Run Improvements

Joint Use Sewer (City and Fairfax County)

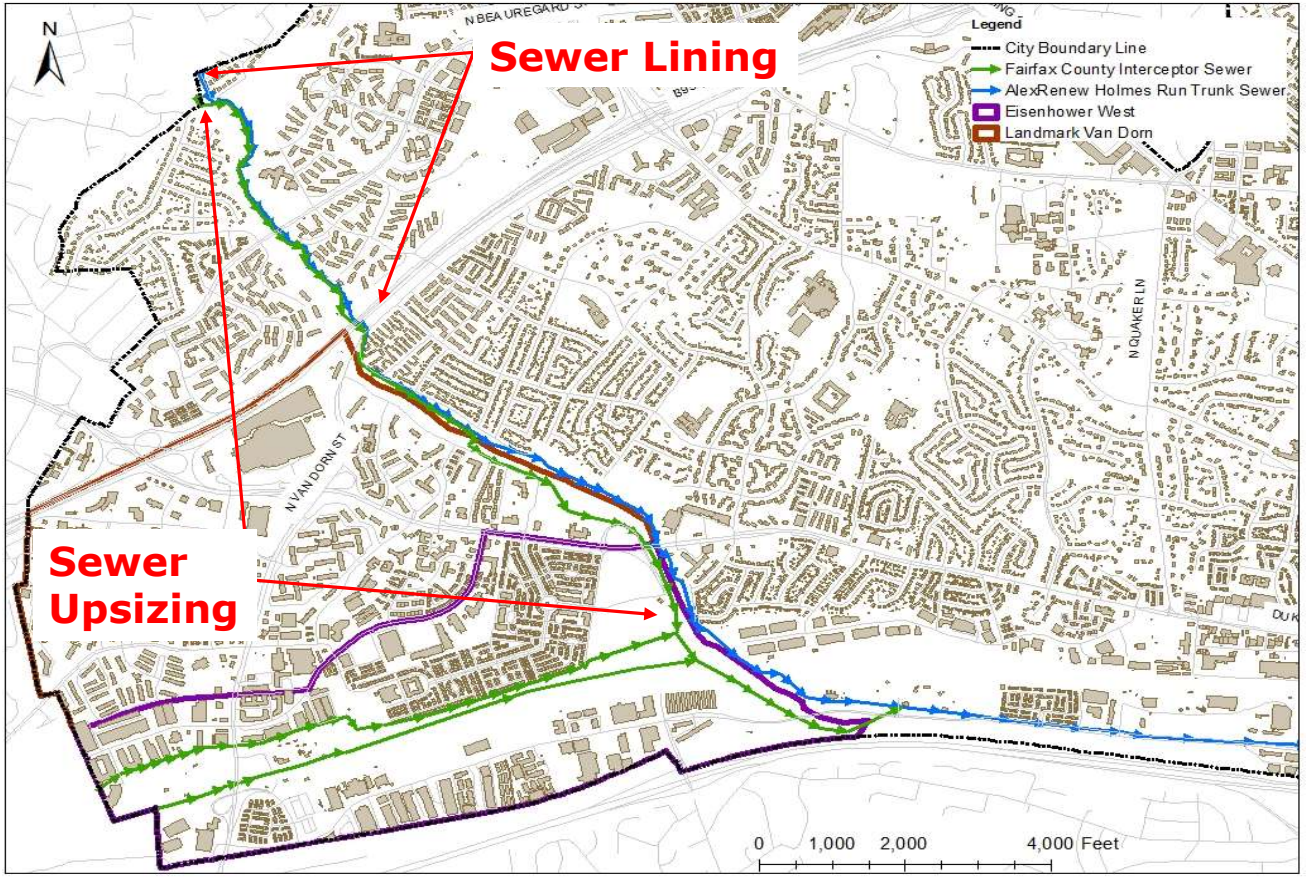
Study recommendation:

- lining on AlexRenew Holmes Run Trunk Sewer

- upsizing on Fairfax Holmes Run Sewer

High level planning cost = $24 million (2015 dollars)

Costs to be shared between City and County (TBD)



Potomac Yard

North Potomac Yard Small Area Plan approved 2020

Phase 1 development construction:

Innovation District Pumping Station

16-inch force main

To be owned and operated by AlexRenew

Phase 2 development construction:

Force main extension

Upsize section of trunk sewer

21-inch relief sewer (City)

AlexRenew to continue to monitor the flows in the trunk sewer and work with City on timing of relief sewer construction

City Collection System Capacity

31 model basins developed to date

- Areas where greatest development anticipated

Model results =16,000 feet of sewer over capacity

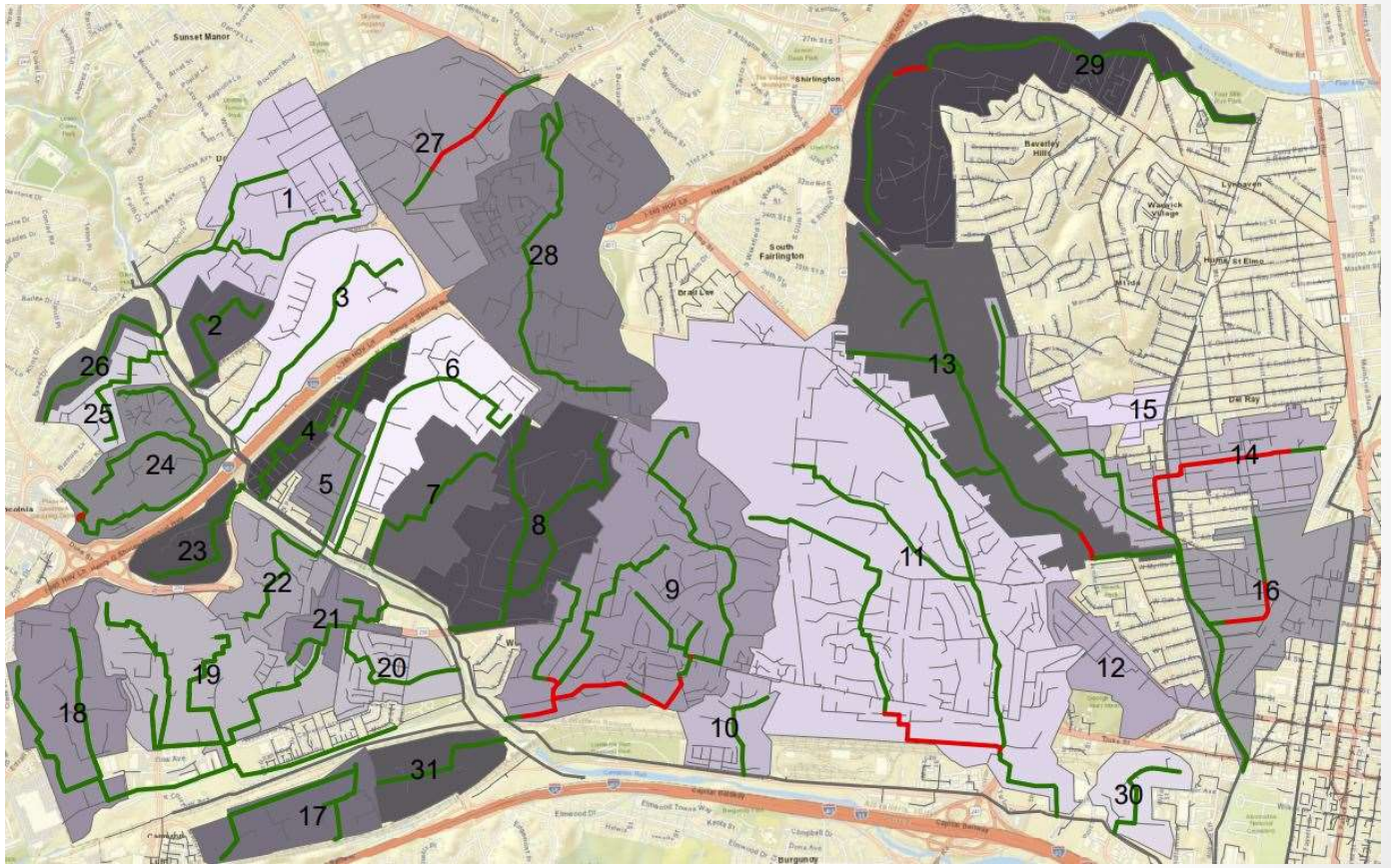
-City: existing capacity issues

- Development: Growth related capacity issues

Future work (ongoing)

- Expand model to include entire City

- Develop comprehensive plan for capacity upgrades

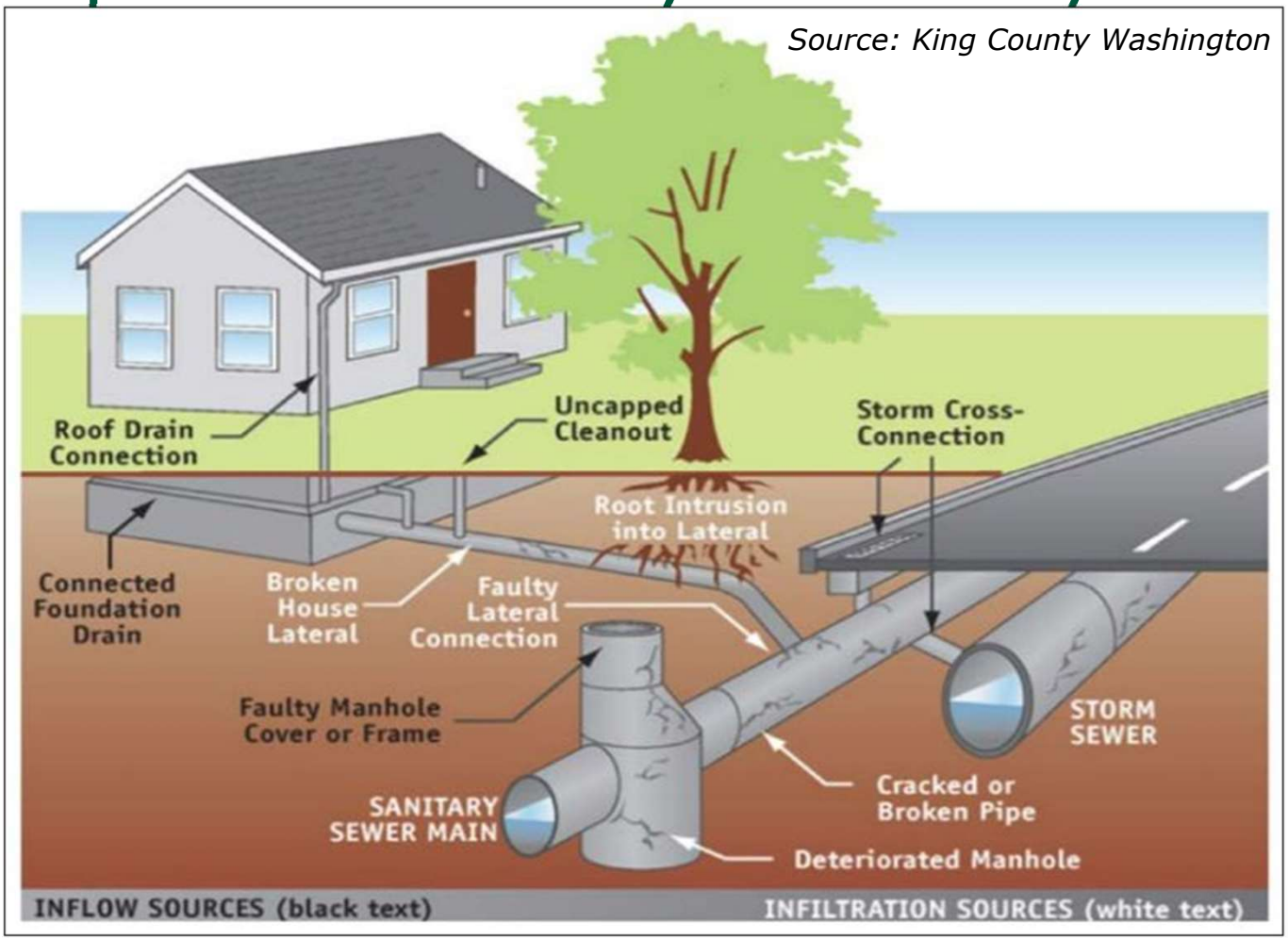


Developer Sanitary Sewer Requirements

As part of site plan (DSUP) process developers are required to:

- Perform an adequate outfall analysis to show there is sufficient capacity in the sanitary sewer system
- Perform capacity improvements in the sanitary sewer system if adequate capacity does not exist
- Install low flow water fixtures that meet EPA's WaterSense standards (minimum of 20 percent less water)

How Does Stormwater Enter the Separate Sanitary Sewer System?



Overview of I/I Reduction Efforts to Date

Program initiated early 2000s

Progression: areas of highest I/I to lowest I/I

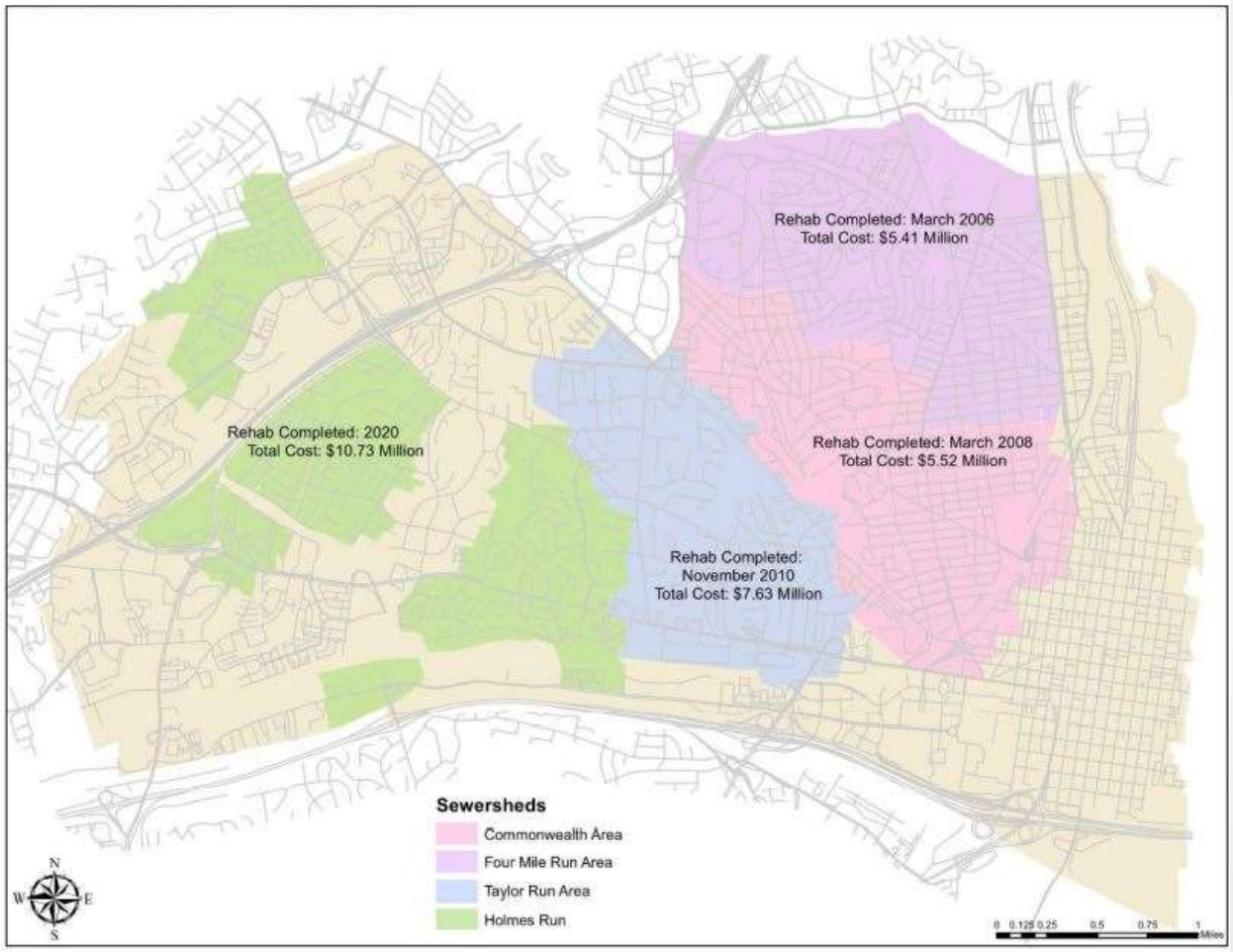
Work completed to date:

~60 miles of sewers rehabilitated

3,175 manholes rehabilitated

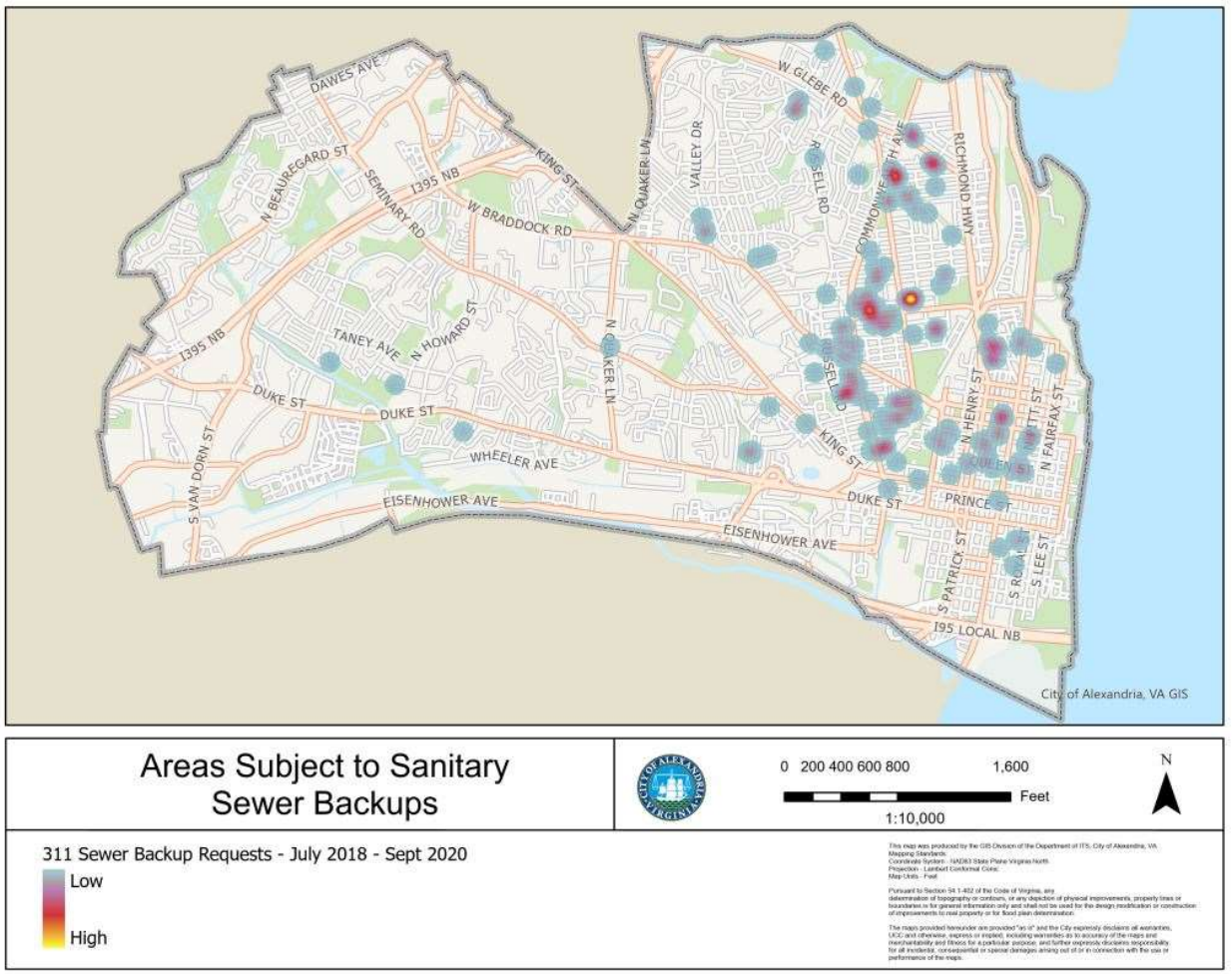
Approximately 500 point repairs

$29.3 million spent to date



Wet Weather Impacts – Sewer Backups

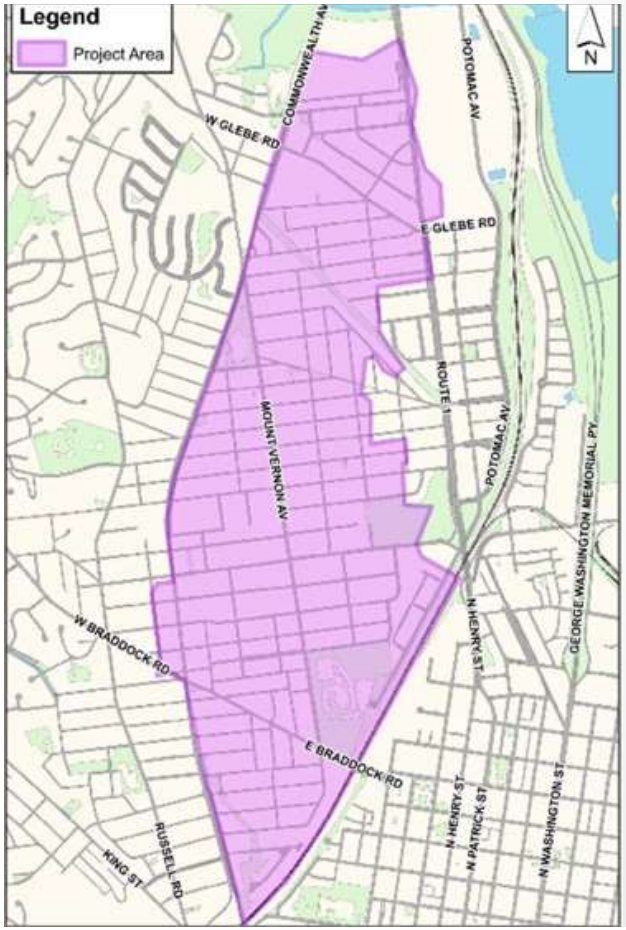
- Wet weather events that have led to sanitary sewer backups
  - July 17, 2018
  - July 8, 2019
  - July 23, 2020
  - September 10, 2020
  - August 15, 2021
- Area map based on reports using Alex311
  - Reported through Call.Click.Connect prior to launch of 311



Moving Forward:
Wet Weather Mitigation Strategies

Sanitary Sewer Asset Renewal Program

- Goal: inspect 10% of sewer system each year, rehabilitation to follow
- Inspections include CCTV of mainline sewers and City-owned lateral sewers, manhole inspections
- 2021: Inspections east of Commonwealth Ave
- 2022: Rehabilitation from 2021 inspections, next round of inspections to commence

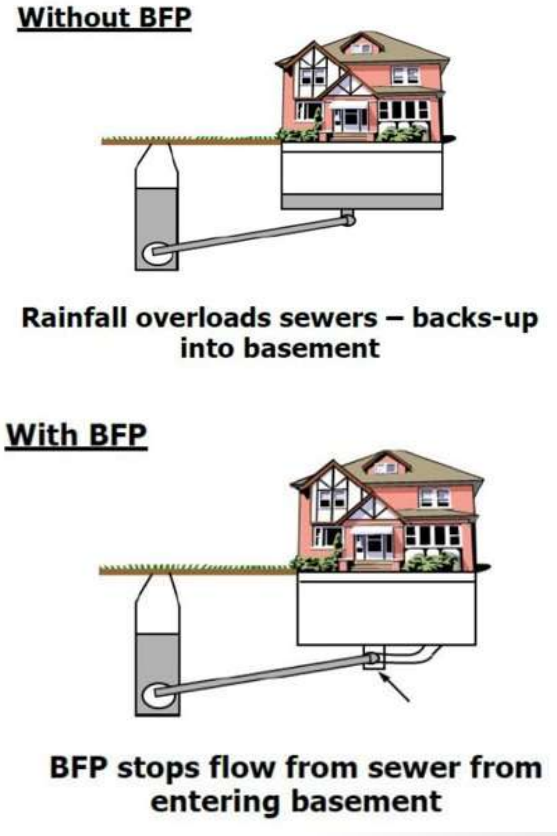


Moving Forward: Wet Weather Mitigation Strategies

Backflow Preventer Assistance Program	•Continue to fund in 2022 •50% reimbursement up to $2,000 •Program refinements as needed
Sewer Capacity Upsizing Projects	•Implement in areas subject to repeat sanitary sewer backups •Developing implementation plan; construction to start in 2023 •Includes potential combined sewer separation projects
Private I/I Program Framework	•Review of other jurisdiction programs •Develop framework for City leaders to consider •Potential implementation TBD

Backflow Preventer Reimbursement Program

- 50% reimbursement, up to $2,000 max
- Cannot use indoor plumbing when activated
- Must disconnect upstream private stormwater connections to sanitary sewer
- Annual maintenance recommended
- For more information visit: www.alexandriava.gov/105378



Sanitary Sewer Funding

Enterprise Fund

- Two sources of revenue fund operating and capital budgets
- No general fund contribution

Maintenance (user) fees

- Customers
- Monthly sewer bill (from AlexRenew)

Connection fees

- Developers
- Paid prior to site plan release

Sewer User Fee (Customers)

- Current fee = $2.28/1000 gallons (billed monthly)
  - Based on monthly water consumption
  - Typical residential charge: $10-12 per month
- Winter average analysis
  - Basis for AlexRenew charges
  - Used by most surrounding jurisdictions
  - More accurately reflects flows in sewer system
  - Seasonal savings of $1-2 per month on City's sewer bill charges

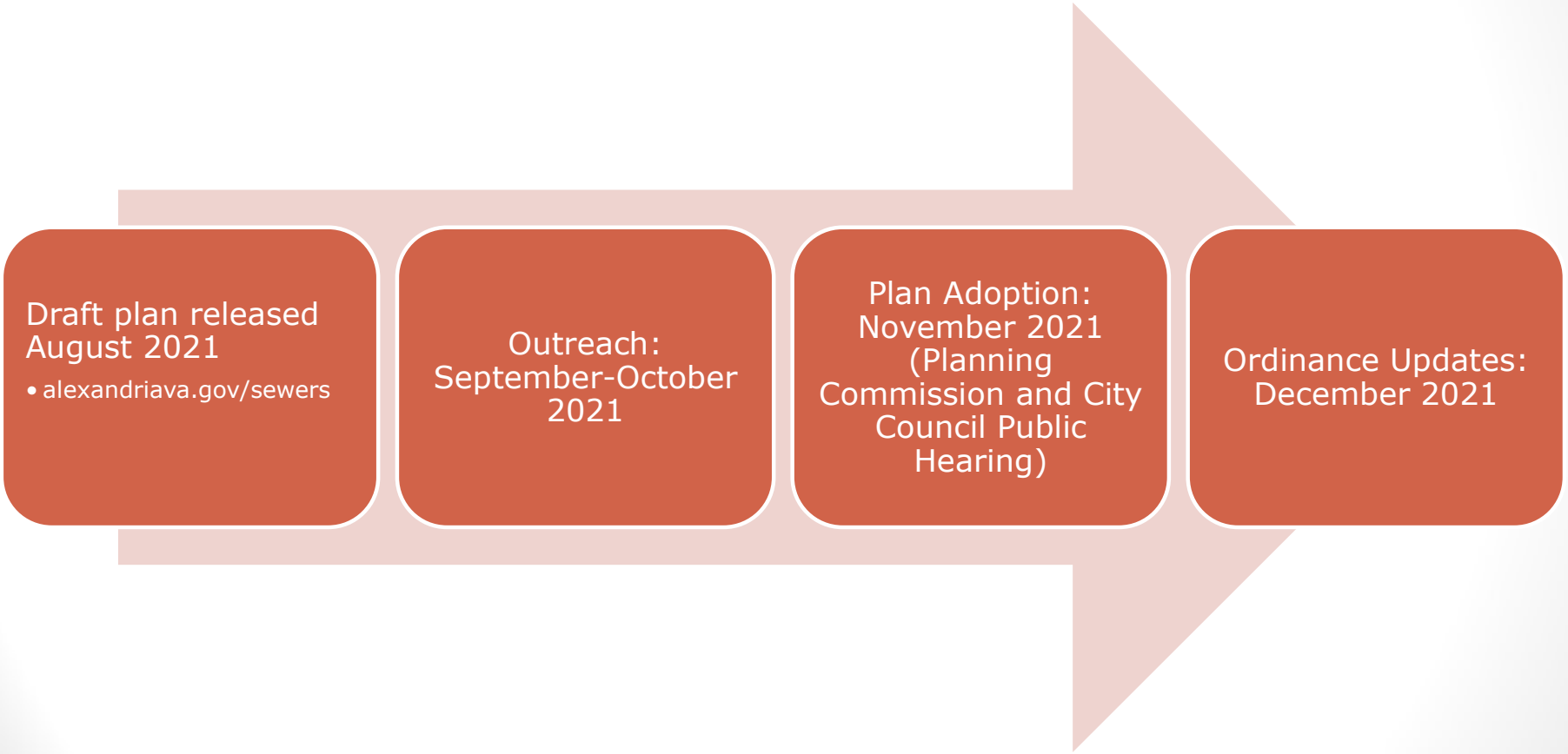
Master Plan Recommendation: Update ordinance to winter average basis, changes to become effective July 1, 2022

Connection Fee (Developers)

Type of Connection	Fee unit calc	Existing Fee (FY2022)	Recommended Fee Changes
Single-Family	Per house	$9,446	No change
Multi-Family (Apt, Condo)	Per unit	$8,501	No change - 90% single-family rate
Hotel	Per room	$8,501	No change - 90% single-family rate
Senior living	Varies	Depends on type of facility	$7,085 (75% single-family rate)
Commercial	Water meter size	Varies based on meter size	Commercial fees increased based on water usage study
Teardown Credit	N/A	50 percent	100 percent - Increased to be consistent with neighboring jurisdictions

Note: Increases in connection fees may be required in the future to fund growth-related capital projects

Schedule


Draft plan released August 2021
• alexandriava.gov/sewers
Outreach: September-October 2021
Plan Adoption: November 2021 (Planning Commission and City Council Public Hearing)
Ordinance Updates: December 2021

How to Provide Feedback

- Draft on website: alexandriava.gov/sewers
- Email comments to erin.beviscarver@alexandriava.gov
- November 13th City Council Public Hearing
- For additional questions, call Erin Bevis-Carver at 703.746.4154

Questions?